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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/284,787	08/16/1999	THOMAS EMRICH	BMID9913US	2784

23690 7590 07/13/2004

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EXAMINER	
ZEMAN, ROBERT A	
ART UNIT	PAPER NUMBER
1645	

DATE MAILED: 07/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/284,787	EMRICH ET AL.	
	Examiner	Art Unit	
	Robert A. Zeman	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2004*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *18-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The amendment and response filed on 4-12-2004 are acknowledged. Claims 18-19 and 23 have been amended. Claims 18-25 are pending and currently under examination.

Objections Withdrawn

The objection to the specification for containing sequences without the requisite SEQ ID NOs. is withdrawn in light of the amendment thereto.

The objection to the specification for the improper use of the trademark BIAcore is withdrawn in light of the amendment thereto.

Claim Rejections Withdrawn

The rejection of claims 18 and 19 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "An antibody comprising a monoclonal antibody" is withdrawn in light of the amendment thereto.

The rejection of claims 18 and 19 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the phrase "having an affinity of "X" against the epitope..." is withdrawn in light of the amendment thereto.

The rejection of claim 22 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the term "under the No." is withdrawn in light of the amendment thereto.

The rejection of claim 23 under 35 U.S.C. 112, second paragraph, as being rendered vague and indefinite by the use of the term "with a high affinity" in the recitation of step (e) is withdrawn in light of the amendment thereto.

The rejection of claim 22 under 35 U.S.C. 112, first paragraph, for failing to meet the biological deposit requirements with regards to the hybridoma R 3A12, deposited at the Deutsche Sammlung fur Mikroorganismen und Zelkuturen under Accession No. DSM ACC2286 (08.10.1996) is withdrawn in light of the statement filed by Applicant's attorney on 10-21-2002.

Claim Rejections Maintained and New Grounds of Rejection

35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The rejection of claims 20-25 under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, is set forth.

It is apparent that mouse myeloma cell line P3x63-Ag8.653 is required in order to practice the invention as claimed (claims 20-21 and 23-25). The deposit of biological organisms is considered by the Examiner to be necessary for enablement of the current invention {see 37 CFR 1.808(a)}. Applicant has demonstrated that said cell line is publicly used. However, Applicant has failed to demonstrate that said cell ~~line~~ line was readily available to the public. Moreover, said availability must be for the life of any patent arising from the instant application.

35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless —
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hinds et al. (Journal of Medicinal Chemistry, 1991 Vol. 34, No. 6, pages 1777-1789 - IDS-6).

The instant claims are drawn to monoclonal antibodies with a binding affinity of 10^8 to 10^{10} M^{-1} for the sequence YPYDVPDYA (SEQ ID NO:1) wherein said antibodies are drawn against a 13- or 14-amino acid containing epitope of human influenza virus haemagglutinin.

Applicant argues:

1. Hinds et al. use a 19 amino acid-containing haemagglutinin peptide as the immunogen for raising monoclonal antibodies whereas the instant claims use a 13- or 14- amino acid peptide.

2. The affinity for the monoclonal antibodies DB19/1 and DB19/25 described by Hinds et al. are much lower than that required by the instant claims.

3. The disclosure by Hinds et al. does not render the instant invention obvious since they do not demonstrate the steps necessary to obtain an antibody with the required affinity.

Applicant's arguments have been fully considered and deemed non-persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention (Point 1), it is noted that the features upon which applicant relies (i.e., 13- or 14- amino acids are used as immunogens for raising monoclonal antibodies) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regard to Applicant's assertion that Hinds et al. do not disclose monoclonal antibodies with the claimed affinities (Point 2), the disclosure by Hinds et al. is not limited to the DB19/1 and DB19/25. DB19/1 and DB19/25 are merely examples of the antibodies raised against the sequence YPYDVPDYA that were further characterized.

With regard to Applicant's assertion that Hinds et al does not render instant invention obvious since they do not demonstrate the steps necessary to obtain monoclonal antibodies with the requisite affinities (Point 3), said methods are standard practice in the art. Moreover, for antibodies specific for a given antigen, the K_d usually varies from about 10^{-7} M to 10^{-11}M (see Cellular and Molecular Immunology, page 54). Therefore since Hinds et al. disclose antibodies with a binding specificity to the sequence YPYDVPDYA (see abstract), some of said antibodies would have the requisite affinities. Additionally, it would be obvious to one of skill in the art to select those antibodies with the highest affinities.

35 USC § 103

Claims 18-21 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hinds et al. (Journal of Medicinal Chemistry, 1991 Vol. 34, No. 6, pages 1777-1789 - IDS-6) in view of Kuby (Immunology, Second Edition, W.H. Freeman and Company, 1994, pages 160-164).

The instant invention is drawn to monoclonal antibodies with a binding affinity of 10^8 to 10^{10} M^{-1} for the sequence YPYDVPDYA (SEQ ID NO:1) wherein said antibodies are drawn against a 13- or 14-amino acid containing epitope of human influenza virus haemagglutinin and methods of making said monoclonal antibodies utilizing peptides comprising the sequence YPYDVPDYA (and derivatives thereof), rodents and a murine myeloma cell line.

Applicant argues:

1. Hinds et al. use a 19 amino acid-containing haemagglutinin peptide as the immunogen for raising monoclonal antibodies whereas the instant claims use a 13- or 14- amino acid peptide.

2. The affinity for the monoclonal antibodies DB19/1 and DB19/25 described by Hinds et al. are much lower than that required by the instant claims.

3. The disclosures by Hinds et al. either alone or in combination with Kuby do not render the instant invention obvious since they do not demonstrate the steps necessary to obtain an antibody with the required affinity.

Applicant's arguments have been fully considered and deemed non-persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention (Point 1), it is noted that the features upon which applicant relies (i.e., 13- or 14- amino acids are used as immunogens for raising monoclonal antibodies) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

With regard to Applicant's assertion that Hinds et al. do not disclose monoclonal antibodies with the claimed affinities (Point 2), the disclosure by Hinds et al. is not limited to the DB19/1 and DB19/25. DB19/1 and DB19/25 are merely examples of the antibodies raised against the sequence YPYDVPDYA that were further characterized.

With regard to Applicant's assertion that Hinds et al do not render instant invention obvious since they do not demonstrate the steps necessary to obtain monoclonal antibodies with the requisite affinities (Point 3), said methods are standard practice in the art. Moreover, for antibodies specific for a given antigen, the K_d usually varies from about 10^{-7} M to 10^{-11}M (see Cellular and Molecular Immunology, page 54).

As outlined previously, Hinds et al. disclose antibodies with a binding specificity to the sequence YPYDVPDYA (see abstract). Hinds et al. do not disclose the exact method steps recited in the instant claims. Specifically, Hinds et al. do not explicitly disclose the use of the P3-x63-AF8.653 murine myeloma cell line or the use of Lou/C rats. However, as disclosed by Kuby, the methodology for producing monoclonal antibodies is well known in the art. An animal (rodent) is challenged with the antigen of interest. Spleen cells (source of primed B cells) are harvested from said animal and fused with HGPRT; IgG immortalized myeloma cells in polyethylene glycol. The resulting hybridomas are selected using HAT containing medium and screened for antibody production. Hybridomas producing the desired antibody are then subcloned. Since the production of a given monoclonal antibody is predicated on the antigen used to immunize the animal, the selection of a specific animal and/or myeloma cell line merely constitutes a conventional alternative to the method disclosed by Kuby and hence would have been obvious to one of ordinary skill in the art.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as it is dependent on rejected claims.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Zeman whose telephone number is (571) 272-0866. The examiner can normally be reached on Monday- Thursday, 7am -5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith can be reached on (571) 272-0864. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LYNETTE R. F. SMITH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Robert A. Zeman
July 7, 2004